SSGIC

SSGIC/USGS Meeting
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USGS Rocky Mountain Mapping Center, Denver Co.

Participants:

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**NPS SEKI – National Park Service, Sequoia and Kings Canyon National Parks
***SSGIC - Southern Sierra Geographic Information Cooperative

Purpose*:* To develop a plan to implement residual issues pertaining to the completion of the expired task order between the SSGIC and the USGS RMMC and to define the status of the current relationship under the continuing Memorandum of Understanding (MOU). Additionally, options were explored to continue and expand this collaboration. Action items are in *italics.*

Discussion*:*

Define current roles and responsibilities -
The relationship between the SSGIC and USGS RMMC has been defined by a task order that expired in December 2002 and a MOU that expires in August of 2004. The task order included both Web server and Website development and Geographic Information Systems (GIS) support. The MOU covers continuing server and Website maintenance.

Residual Web Server and Website Issues:

- **Connect stakeholder agencies to the server and ensure ArcIMS access -**
  Two SSGIC stakeholder agencies have obtained fixed Internet Protocol (IP) addresses and are ready to begin developing ArcIMS map services for their respective agencies. *The BLM - Bakersfield field office will be connected to and able to create map services by May 1, 2003 and the other agencies will follow*. Larry Vredenburgh (661-391-6153) of the BLM will be available to betatest his connectivity during the week.

- **NFPORS presence on the SSGIC Web server -**
  NFPORS was moved to the SSGIC server last summer in response to stability problems on the Wildfire server where it previously resided. The primary issue relating to its presence on the SSGIC server is that Website statistics between the two websites are confounded, making it difficult to track SSGIC web usage. *John Guthrie will write a script to separate the statistics of the two websites by July 1, 2003 and move NFPORS to another server by May 2004.*

- **SSGIC security plan implementation** -
  The SSGIC contracted the Root Group to develop a security plan for the server that is nearly completed. All issues addressed in the plan were reviewed. Decisions were made whether and how to implement each, and strategies identified for completion. The following were the issues identified by the security plan:
  - ✓ Decisions needed -
    The plan states that decisions are needed on whether the SSGIC system is mission essential or mission critical and the level of sensitivity of the data. These decisions, in part, determine the level of security needed by the server. *Brian Bradley will provide documents defining these designations and guiding the decision.*

  - ✓ USGS RMMC/SSGIC relationship needs definition -
    The plan established the need for a new contract between the two groups including funding levels. *It was agreed that the existing MOU is sufficient for its duration.*

  - ✓ User management issues -
    The plan identified deficiencies in a number of areas of user management. *Anne Birkholz will develop a Rules of Behavior and User Request/Certification Form based on existing USGS RMMC documents*. The need for improved user training in several areas was also identified. *The SSGIC ArcIMS "cookbook" currently being prepared by the SSGIC will include security information at the operating system, ArcIMS management, and data management levels.* Employees of all federal agencies are currently required to complete user security awareness training to obtain an agency network profile. Similar training is not required by the Kern County Fire Department or the Tulare Ranger Unit of the California Department of Forestry and Fire Protection. *The SSGIC will acquire a similar training course and require completion by the ArcIMS managers from these agencies.*
  - ✓ Server management issues -
    The plan noted the following security issues relating to server management:
    - Issues identified on pages 8 and 9 of the SSGIC security plan -
      Pages 8 and 9 of the security plan identified a substantial number of relatively small issues to be remedied. They include removing unused software, upgrading software, disabling unused services, implementing a login warning banner, etc. The largest task identified was to reconfigure our RAID array from a striping level to a redundant level. Since our operating system and application software do not reside in the RAID array, a higher level RAID would not provide redundancy for these. Current backup procedures provide sufficient security and, in case of a data emergency, data could be quickly restored from tape. Therefore, we will retain our current striping RAID level. *Brain Bradley will schedule a week of server downtime to implement planned changes. The security plan will be updated following these changes*. All other activities requiring the server to be down will be implemented at the same time, such as upgrading ArcIMS and implementing extract services as noted

under "ArcIMS issues" below. The two existing RAID arrays will be reconfigured into one larger array.

- Lack of data management procedures -
  SSGIC will develop and document procedures to maintain data organization. This will include where data resides (local shapefiles vs. the Spatial Database Engine (SDE)) and directory structures. Limits will be placed on the disc space allotted to each stakeholder agency and the number of website hits allowed per day. If a user wishes to move a dataset into SDE, Sandy Walters at USGS RMMC needs to be contacted and decisions will be made on a case-by-case basis.
- Lack of user profile management procedures -
  SSGIC will document procedures to track user profiles, addressing both the creation of new profiles and deletion of obsolete profiles.
- Insecure local file system group level permissions -
  Appropriate group level permissions to the local file system were never implemented. With new users beginning to use the system, this needs to be done. SSGIC will provide logical permissions. *USGS RMMC will ensure implementation*.
- Lack of ArcIMS user level access control -
  Lack of user level access control is a recognized deficiency in ArcIMS, regardless of version. All map services are managed under the same login with no protection from other users. *The ArcIMS "cookbook" will explain the situation and need for users to use caution to prevent corruption of others map services.* Only map services themselves are at risk, not data or AXL files.
- Insufficient review of system logs and user web access -
  Depending of the need for security, there is a trade-off between system performance and the maintenance of log files. *Brian Bradley and SSGIC will determine the appropriate level of security needed based on the outcome of "decisions needed" above and the updated security plan will document the decision.*
- Lack of change control processes -
  Change control includes a wide scope of configuration management issues that can result in a very rigid system. *The SSGIC will not implement high level change control, but limit change control to data management procedures documented above*.
- Antivirus software disabled -
  The antivirus software was previously disabled to improve system performance. *This will be enabled*.
- Insufficient user password security -
  The current level of user password management is minimal. Anticipating an increase in the number of stakeholder agency users, *USGS RMMC will implement password aging and then test with the password cracker.*
- System scans identified insecure areas -
  The results of a system scan are attached to the security plan and identifies a number of security holes such as unused open ports and vulnerable ports. *Unused ports will be disabled and vulnerabilities corrected during the week the server is down for maintenance.*

- Routine, offsite backup procedures are needed -
  Existing USGS RMMC procedures include routine incremental backups and monthly full backups stored offsite in Building 20. SSGIC would like additional system backups stored outside of Denver. Additionally, the data is only stored in Denver, with no copy "local" to the SSGIC. The following will be implemented:
  1) *Continue the existing incremental backups and monthly full backups stored in Building 20*
  2) *USGS RMMC will semi-annually provide SSGIC with a full system backup tape, acknowledging that SSGIC will not be able to read it, only provide it in case of emergency*
  3) *To fill the need of having a readable copy of SSGIC data locally, SSGIC will purchase an external hard disc readable by both agencies to periodically transfer data.* Minimum size needed is 130 Gig's with 200 Gigs optimal.
- A developmental server is needed to eliminate user system level access -
  Increased use by ArcIMS managers, especially novice users, can adversely affect the system. One solution is to implement a parallel server for development. A new map service would only be moved to the production server after testing by system administrators. *There was concurrence that this is a desirable goal, but implementation will occur in future proposals.*

✓ Two additional issues identified -

- The SSGIC is dependent on the USGS RMMC Sue7 computer to serve data stored in SDE on that server-
  The current dependence on SDE data on Sue7 is recognized. Independence from Sue7 is not a goal. Serving data from SDE improves ArcIMS performance on the SSGIC server. *This issue will be reevaluated in future funding proposals.*
- All computers residing in the USGS DMZ with the SSGIC server, including the firewall protecting them, need to implement similar security plans -
  The USGS RMMC is currently developing and implementing security plans for these machines.

➢ **ArcIMS issues -**

ArcIMS version 3.1 is currently installed on the Website. SSGIC has the upgrade to version 4.01, but it has not been installed. The pros and cons of installing the upgrade were discussed. The primary issue driving the upgrade would be to implement the ArcIMS extract server that was unstable under version 3.1. Implementing the extract server would significantly improve several data management issues. Potential drawbacks include USGS resources required to upgrade ArcIMS and implement extract services. In particular, upgrading to version 4.01 may result in conflicts with existing Cold Fusion, Apache, or Tomcat installations. *The USGS RMMC will upgrade ArcIMS to 4.01 and implement extract services concurrent with implementing other aspects of the security plan, unless issues relating to the other application packages are intractable.*

Future of the SSGIC-

- **SSGIC is identified as betatest site of the Fire Program Analysis system (FPA) -** The FPA system is a national program to develop an interagency fire management database. The SSGIC has been identified as one of four betatest sites for the FPA.

- **Potential as a National Map pilot program** - The USGS National Map program is developing agreements with groups as high resolution, local holdings to augment National Map datasets. The SSGIC would be interested in exploring such an agreement. *Mark Eaton will provide SSGIC with documentation on the roles and responsibilities of such an agreement by June 10, 2003, in time for the SSGIC to include it on the agenda at a scheduled meeting with the FPA*. By coordinating with both the FPA and National Map, the SSGIC would be well positioned to ensure good communication between these programs.

- **Expansion geographically and/or to other resource areas outside of fire** - Agencies outside the SSGIC project area have indicated interest in joining the cooperative. Additionally, many of the datasets and/or analysis products developed by the SSGIC could be leveraged by other natural resource areas. The current Website is designed to accommodate these expansions.

- **SSGIC identified direction includes increasing website capability and improving data management procedures** to: -
  - ✓ Pursue interactive capability that allows users to add data and conduct analyses via their web browser
  - ✓ Web deployment of the Asset Analyzer
  - ✓ Automate the process to maintain and update spatial data
  - ✓ Automate the process to update analyses
  - ✓ Automate process to implement metadata
  - ✓ Develop processes to demonstrate change and track accomplishments

  The SSGIC is moving towards increasing website capability and improving data management procedures. This is consistent with USGS RMMC direction. *It was agreed that the SSGIC and USGS RMMC will continue their collaborative effort. A 2004 Joint Fire Sciences Program grant proposal will be jointly written to seek funding.* The proposal will be a comprehensive plan covering management and technical solutions for national fire management and include academic partners. *The SSGIC will seek additional funding from the FPA program.*

Conclusions:

Acknowledging common goals and the success to date of the partnership, both agencies stated their desire to continue collaborating. Server support, including completion of a number of residual server maintenance issues, will continue under the current MOU. Funding for continued development of the Website and server including expanded capability will be pursued by seeking a 2004 JFSP grant.